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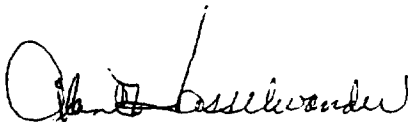
A. Richard Metzger, Jr.  
Chief, Common Carrier Bureau  
Federal Communications Commission  
1919 M Street NW  
Washington, DC 20005

Dear Mr. Metzger

During the original work conducted by the Local Number Portability Administration (LNPA) Working Group, a sub team of the North American Numbering Council (NANC), no consensus was reached concerning a process to provide Local Number Portability (LNP) for High Volume Call In (HVCI) Networks. This issue is documented in Appendix D, Architecture and Administrative Plan for Local Number Portability of the LNPA Selection Working Group report dated April 25, 1997. Paragraph 82 of the *Second Report and Order*, CC Docket No. 95-116, requested the NANC to study this matter further and to prepare recommendations on how to best incorporate HVCI Networks into the LNP scheme.

The LNPA Working Group conducted discussions of this issue over several months during late 1997 and early 1998 and finalized a recommendation to NANC that was adopted by the NANC members earlier this year. Attached is the LNPA Working Group report that contains a description of the work effort under-taken to resolve this issue as well as the recommendation. The LNPA Working Group subsequently requested that the NANC forward the report to the Common Carrier Bureau in order to issue a public notice providing for a comment period as is required in Paragraph 130 of the *Second Report and Order*.

Sincerely,



Alan C. Hasselwander  
Chairman North American Numbering Council

cc: Lawrence E. Strickland, Geraldine Matise, Erin Duffy, Jeannie Grimes

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**North American Numbering Council**

**Local Number Portability Administration  
Working Group  
High Volume Call-In Networks**

**February 18, 1998**

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**1. INTRODUCTION**

- 1.1 On July 2, 1996, the FCC ordered all Local Exchange Carriers (LECs) to begin the phased deployment of a long term Service Provider Local Number Portability (LNP) method in the 100 largest Metropolitan Statistical Areas (MSAs) no later than October 1, 1997, and to complete deployment in those MSAs by December 31, 1998.<sup>1</sup>
- 1.2 The FCC directed the North American Numbering Council (NANC), a federal advisory committee, to make recommendations regarding specific aspects of LNP implementation. NANC was directed to make several determinations regarding the overall national LNP architecture, technical specifications for regional LNP databases, and selection of administrators to develop and manage such databases. NANC established the Local Number Portability Administration (LNPA) Working Group to review and make recommendations on these LNPA issues. The LNPA Working Group made a comprehensive report to NANC on April 25, 1997 which was released to the FCC on May 1, 1997.
- 1.3 The LNPA Working Group report included the LNP Architecture and Administrative Plan that described High Volume Call-In Networks (HVCIs)<sup>2</sup> sometimes referred to as Choke Networks. HVCIs allow customers with large volumes of terminating traffic for mass calling events such as media stimulated promotions, prize competitions, votes, etc. to be assigned numbers in an NPA-NXX dedicated for such use. Traffic for HVCIs is segregated and routed to the network via dedicated trunk groups that are engineered to handle limited traffic in order to avoid network congestion. With LNP, before route selection takes place, a database query is performed on calls to NPA-NXXs where porting is available. If HVCIs numbers are portable, they would generate large volumes of queries that would congest signaling links and Service Control Points (SCPs). If HVCIs numbers are ported and a Location Routing Number (LRN) is returned in the database response, the call will not be routed via HVCIs dedicated trunks resulting in traffic congestion in regular trunk groups.
- 1.4 The LNPA Working Group and its subcommittee, the LNPA Architecture Task Force, were not able to reach a consensus recommendation to adopt a plan allowing for portability of HVCIs. Rather, the LNPA Working Group recommended further study. In the FCC's Second Report and Order in the matter of telephone number portability released on August 18, 1997<sup>3</sup>, the FCC urges the industry, under the auspices of NANC, to study the matter further and to prepare recommendations on how best to incorporate HVCIs into the LNP scheme.

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<sup>1</sup> First Report and Order and Further Notice of Proposed Rulemaking, cc Docket No. 95-116, July 2, 1996 (LNP Order). On March 11, 1997, the FCC released a First Memorandum Opinion and Order on Reconsideration, in which the LNP deployment periods for the first two (2) implementation phases were extended.

<sup>2</sup> LNPA Working Group Report, April 25, 1997, Appendix E, Paragraph 7.13.

<sup>3</sup> Second Report and Order, cc Docket No. 95-116, August 18, 1997, ¶82.

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- 1.5 The LNPA Working Group considered a proposal presented by Southwestern Bell (SBC) on October 7, 1997 that allows for porting of HVCI numbers without using Location Routing Number (LRN), the process adopted for routing calls in the network to NPA-NXXs where porting is available. On November 12, 1997 an alternative proposal was made by AT&T that uses existing technology and LRN. The alternatives were again discussed during the December 9, 1997 and January 8, 1998 LNPA Working Group meetings, on a conference call on January 16, 1998, and finally during the February 11, 1998 meeting when the final recommendation contained in Section 3 was adopted by consensus of the LNPA Working Group.

## 2. TECHNICAL SOLUTIONS

### 2.1 Option 1 - SBC Non-LRN Solution

- 2.1.1 The SBC Non-LRN solution is based on the HVCI methods currently used internally by SBC. Service Providers with HVCI customers open a pseudo NXX or the dialed choke NXX code in their end office with routing restrictions and establish a dedicated choke trunk group from the ILEC choke serving office. If a pseudo NXX is being used, translations at the ILEC choke serving office convert the dialed HVCI number to the non-dialable pseudo NXX and then utilize route indexing to route the call to the Service Provider's end office. Where the pseudo NXXs are not in use, route indexing is used to deliver the call to the Service Provider's end office with the dialed HVCI number. The SBC option is described in detail in Appendix A.

#### 2.1.2 Option 1 Concerns

- A. The FCC LNP Order requires any long-term number portability method to efficiently use numbering resources.<sup>4</sup> Both options require use of a new NXX, probably at the LATA level, for each new Service Provider offering HVCI services to new customers that are not currently already assigned an HVCI number. Vacant number porting would alleviate this concern, however, a manual process would be required.
- B. The FCC LNP Order requires that no unreasonable degradation in service quality or network reliability occur when a long-term number portability method is implemented<sup>5</sup> and no degradation of service quality or network reliability when customers switch Service Providers<sup>6</sup>. An open question remains concerning the ability of Option 1 to satisfy

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<sup>4</sup> First Report and Order and Further Notice of Proposed Rulemaking, cc Docket No. 95-116, July 2, 1992, ¶51.

<sup>5</sup> Id. at ¶55.

<sup>6</sup> Id. at ¶56.

these performance criteria.

- C. The FCC LNP Order states that the cost recovery mechanism for LNP should not have a disparate effect on the incremental costs of competing carriers seeking to serve the same customer<sup>7</sup>. Service Providers, therefore, want to ensure that the ILECs will provide the choke network facilities described in Option 1 at the same incremental cost as the ILEC incurs.
- D. The FCC LNP Order requires neutral LNPAs that are not aligned with any particular telecommunications industry segment to manage the porting process including administration of LRNs to ensure accurate routing of calls to ported numbers. However, Option 1 results in ILEC administration of routing information for HVCI networks.

## 2.2 Option 2 - AT&T LRN Solution

- 2.2.1 The AT&T LRN option builds on the existing LRN infrastructure to port and route HVCI traffic. Service Providers serving HVCI customers require a choke LRN. ILECs use existing choke codes to define LRNs and Competitive LECs (CLECs) use non-dialable NPA-NXXs. Use of LRNs allows routing of HVCI traffic on dedicated choke trunk groups.
- 2.2.2 Option 2 solution provides for choking before the query in order to protect the LNP routing data bases from calls to HVCI numbers. Choking is accomplished through the choke trunk between the end office and the tandem that launches the query, or via a loop around trunk at the end office for end offices that launch the query. To support networks that serve HVCI numbers from multiple switches, translations at the tandem are performed. The AT&T option is described in detail in Appendix B.
- 2.2.3 Option 2 Concerns
  - A. The FCC LNP Order requires that no unreasonable degradation in service quality or network reliability occur when a long-term number portability method is implemented<sup>5</sup>. The FCC has also stated that they consider network reliability to be of paramount importance.<sup>8</sup> HVCI or Choke networks were deliberately designed to isolate mass calling traffic from the public switched telephone network (PSTN) to avoid

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<sup>7</sup> Id at ¶132.

<sup>8</sup> First Memorandum Opinion and Order, cc Docket No. 95-116, March, 1997, ¶ 83.

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network reliability problems. Option 2 integrates this traffic back into the PSTN and significantly increases the risk of network reliability failures. It also significantly increases the complexity of HVCI networks by adding several processes such as loop around trunks and LRN query, which increase the potential for human or machine error which could trigger catastrophic network failures.

- B. Option 2 has a disparate effect on the incremental cost for an ILEC to serve a HVCI customer because ILECs would be required to add route indexing processes, loop around trunks and possibly augment SS7 links at each end office, as well as adding LRN database capacity in addition to its existing HVCI/Choke network functions. In addition in order to avoid querying at the tandem or choke serving office where aggregated HVCI trunks could generate huge query attempts, all MF choke trunk groups would have to be converted to SS7 to prevent duplicate queries from being launched at the tandem and choke serving offices.
- C. As indicated 2.1.2 A, the FCC LNP order requires any long-term number portability method to efficiently use numbering resources.<sup>4</sup> It is not clear that all network elements will accept 0/1XX codes in an LRN since generic requirements show the LRN format as NXX-NXX-XXXX where N represents the digits 2-9 and X represents the digits 0-9. If 0/1XX codes cannot be used, Option 2 will require assignment of a unique HVCI NXX for every choke serving end office in every Service Provider's network even though those Service Providers may not serve any new HVCI customers that don't have an existing HVCI number.

### 3. RECOMMENDATIONS

- 3.1 The two (2) options described in Section 2 above were considered at the LNPA Working Group meeting on February 11, 1998. A vote was taken and Option 1, the SBC non-LRN solution received the consensus endorsement of the group. To address the concerns noted for Option 1, the conditions outlined in paragraphs 3.2 through 3.4 below were agreed upon by the LNPA Working Group membership.
- 3.2 Requests for modifications to the process or transition to an LRN-based solution may be made by any Service Provider to the LNPA Working Group any time following implementation of Option 1 if the Service Provider can provide any evidence that the current method fails to meet FCC performance criteria for LNP.
- 3.3 In support of the selection of Option 1, it was agreed that each Service Provider should be responsible for the provision of the network facilities on their side of the interconnection point for the choke trunk groups to the choke serving office as described in Appendix A. This should ensure parity in incremental costs of provisioning the choke trunk groups for all Service Providers. In addition, it was agreed that there should be no incremental charges over existing terminating compensation for use of the choke network to provide number portability.
- 3.4 In order to conserve numbering resources and acknowledging the expectation that HVCI service volumes will continue to be minimal, all parties agree to request that the Industry Numbering Committee (INC) ensure that the guidelines for the new North American Numbering Plan Administrator (NANPA) contain requirements for a process to facilitate sharing of existing and future HVCI numbering resources. If this process is not yet available when a Service Provider needs a number for a customer requiring HVCI services, consistent with the current uses of HVCI networks as described in paragraph 1.3, the ILECs and CLECs will make a good faith effort to share the existing HVCI numbers through a temporary process administered by the ILEC. The parties will work together to establish new choke NPA-NXXs when current HVCI numbers are exhausted.



## **Appendix A**

### **SBC Presentation - Option 1**

# High Volume Call In (HVCI)/Choke Service Number Portability

Gary Fleming  
SBC

# HVCI (Choke) Networks

- HVCI or choke networks were designed to protect the originating office, trunk network, tandem and terminating office from network overloads caused by a mass calling conditions.
- Portability for HVCI service part of service provider portability.
- Porting of HVCI numbers must not create a negative impact on network reliability.

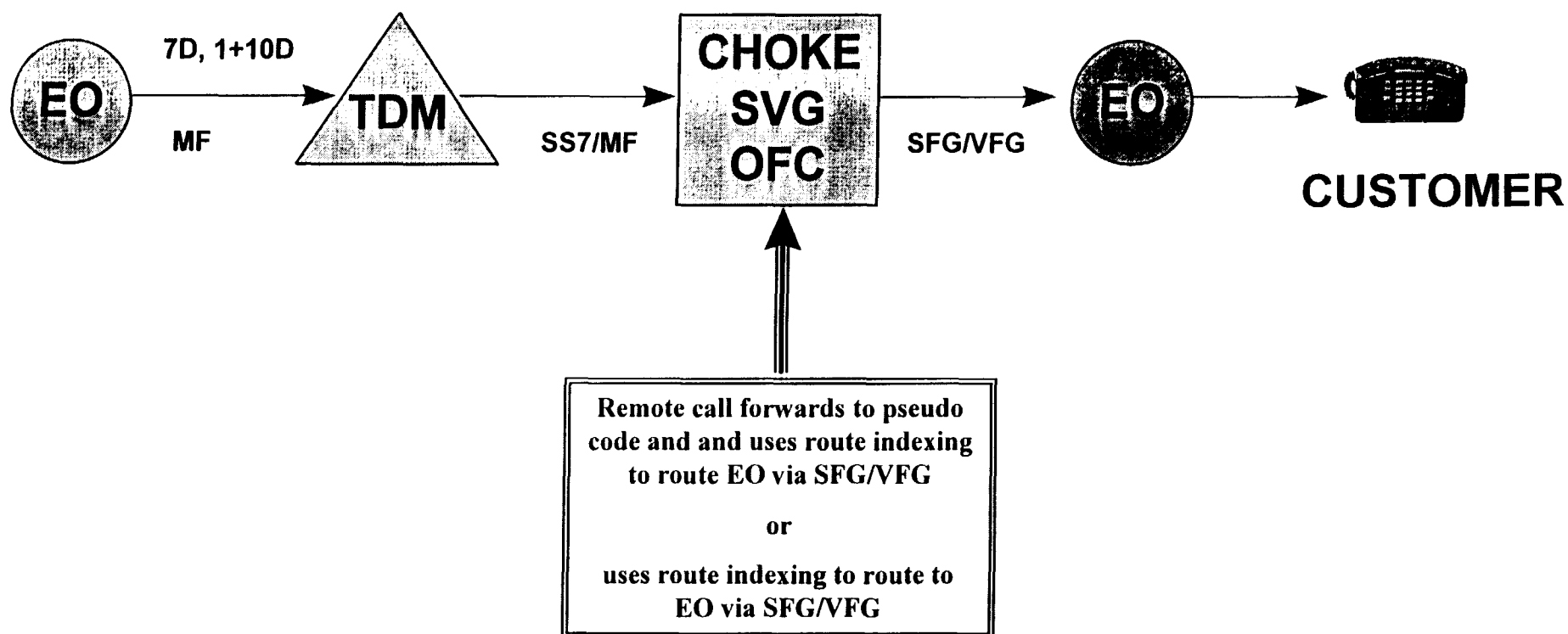
# HVCI (Choke) Service Number Portability

- SBC Work Effort Objective: Develop methods to allow a end user of a HVCI service to change service providers without changing HVCI telephone numbers while protecting the integrity of the network.

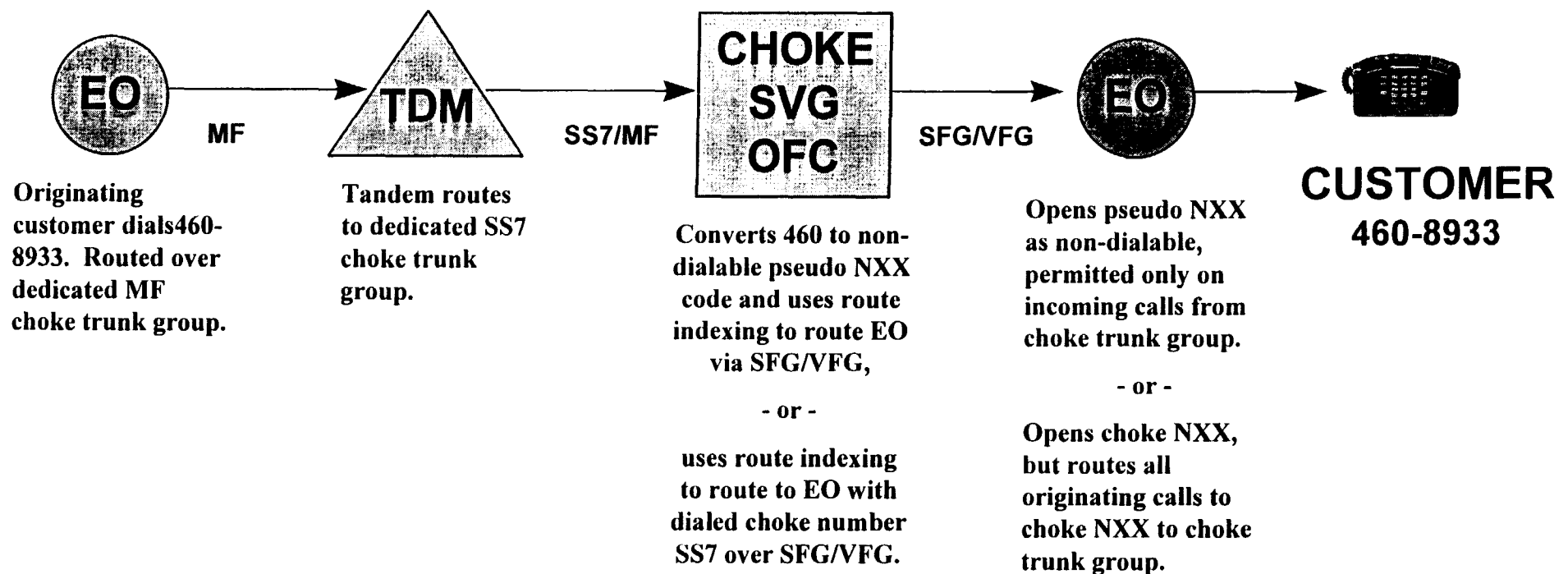
# HVCI (Choke) Service Number Portability

- Even with 2 stages of choking, potential call attempt volumes can exceed switch query capacity and thus preclude use of LRN.
- SBC proposal to utilize same methods used internally with SBC to port HVCI customer (pseudo code or route indexing).

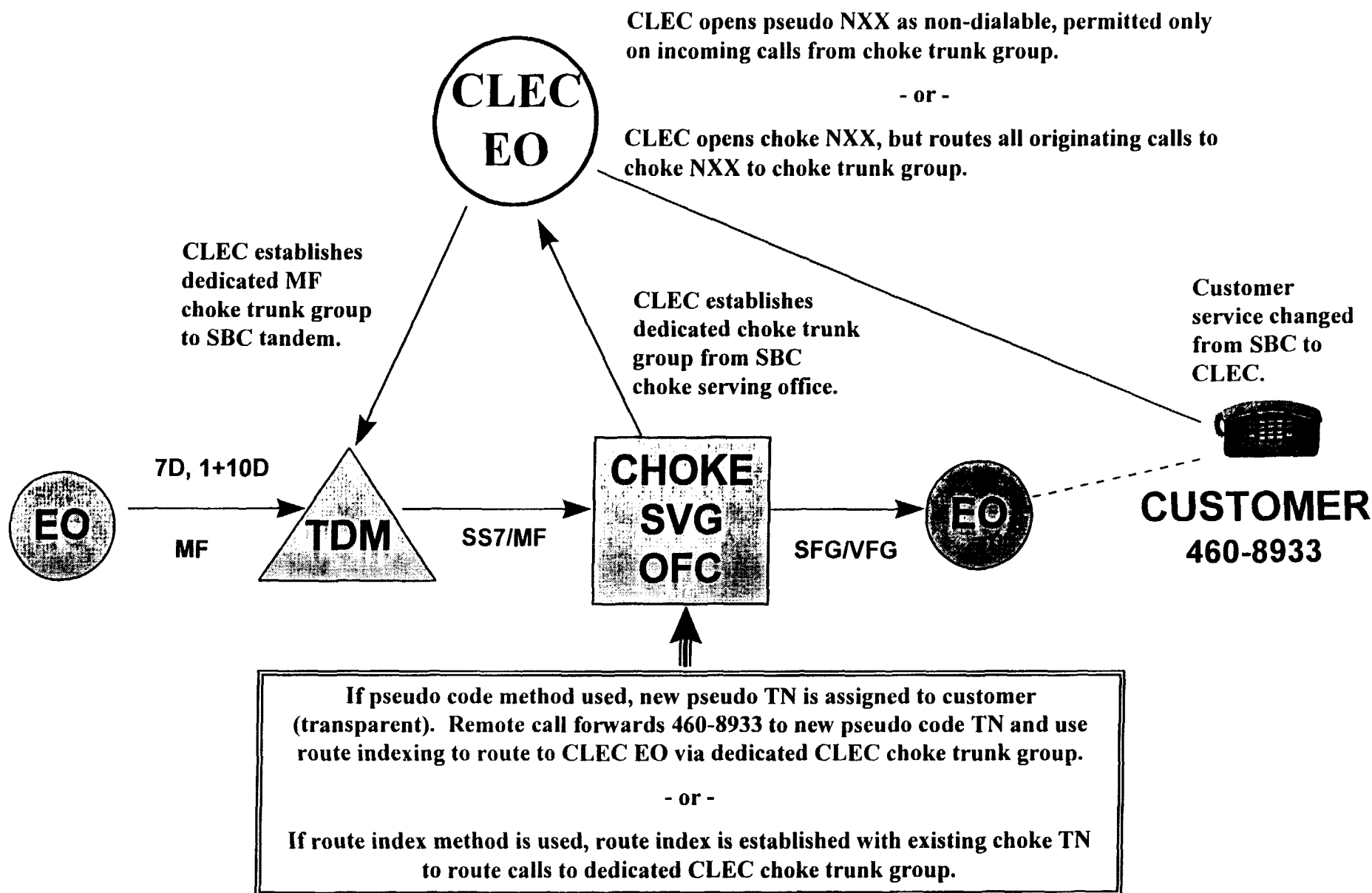
# SBC Target Choke (HVCI) Network Architecture



# SBC Target Choke (HVCI) Network Architecture Call Flow



# Choke (HVCI) Service Porting





# HVCI (Choke) Service Number Portability

- Provides same functionality as used by SBC.
- Protects network from HVCI related overloads.
- New service provider will need to establish dedicated choke trunk group from the choke serving office.
- New service provider will need to open pseudo code or choke code with routing restrictions as specified.
- SBC will perform translations at choke serving office to route choke calls for the ported number to the new service provider's switch.

# HVCI (Choke) Service Number Portability

## OPEN ISSUES:

- LSR requirements.
- Service methods for Choke Service NXX codes by other service providers.
- Compensation issues.

## **Appendix B**

### **AT&T Presentation - Option 2**

# Media Stimulated Mass Calling and LRN Portability

***Presented by  
E.L. Davenport***

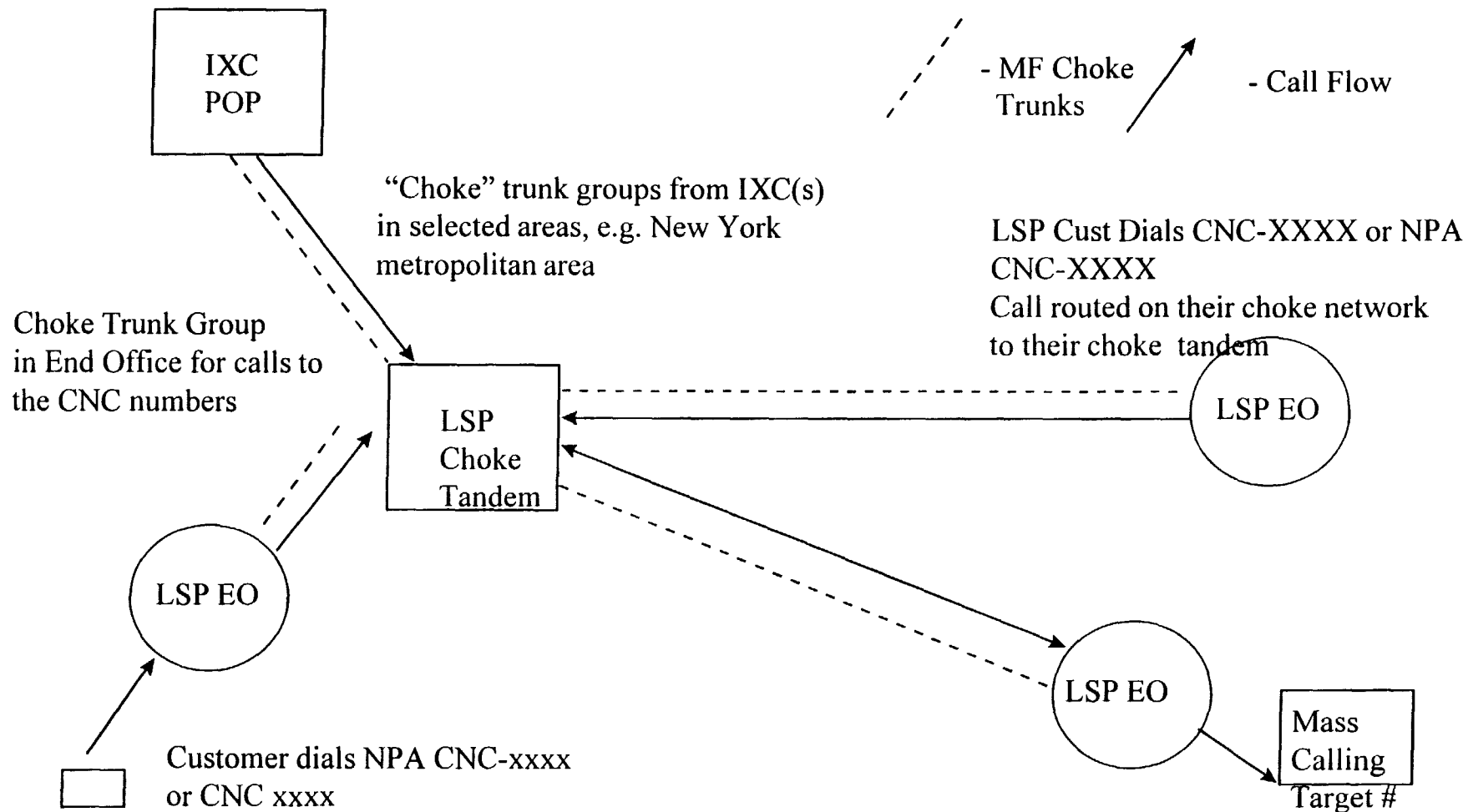
# Goals

- ◆ Protect Integrity of Interconnected Networks
- ◆ Promote Competition in Local Service

# Media-Stimulated Mass Calling Today

- ◆ Choke Network Code (CNC) Dedicated to Planned Mass Calling in Major MSAs
  - e.g. 591 in Chicago area, used across NPAs
- ◆ MF Choke Networks in Place
  - Limit traffic to small number of trunks (2-6) from end offices
  - May or may not limit service to one EO in network
  - May involve translation to non-dialable pseudo-number

# Mass Calling Architecture Today



# Portable CNC Scenario

- ◆ CNCs are LRN Portable
- ◆ Unassigned CNC Numbers are Pooled
  - *CNC Numbers Served on CLECs are always ported*
  - *Avoid using up number space*
- ◆ Each LSP that serves Mass Calling Customers in the region assigned a choke LRN
  - *NPA-0/1xx*
  - *Routing to CLECs controlled by choke LRN*
  - *Routing to ILEC controlled by CNC*
  - *Both types of routing can use same choke networks*
- ◆ All LSPs Agree to Route CNC Dialed Numbers on choke trunks prior to LRN query



# Portable CNC Scenario: Calls from One LSP to Another LSP: CNC Number is Ported

